



**Public Workshop to Discuss
Reducing Emissions from
In-Use Commercial Harbor Craft**

2002 California Statewide Commercial Harbor Craft Survey

March 23, 2004

California Environmental Protection Agency



Air Resources Board

California Statewide Commercial Harbor Craft Survey

- Survey focuses on Harbor Craft
 - Fishing boats, tug boats, ferries, work boats
- Collected data on vessels & activity for 1999-2001
 - Vessel age and use, engine information, fuel usage
- Data to be used to improve inventory and support efforts to reduce emissions

Vessel Data

- Collected data on 900 vessels and 1800 engines
- Most common home ports
 - San Diego
 - San Francisco
 - Los Angeles
 - Bodega Bay
 - Moss Landing

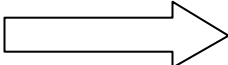
Most Common Vessels Use Reported Was Commercial Fishing

51% Commercial Fishing
11% Commercial Passenger Fishing Boats
9% Ferry / Excursion Boats
8% Tug Boats
7% Work Boats
7% Other Boats
2% Tow Boats
2% Crew Boats
1% Pilot Boats

Wide Range of Vessel and Engine Ages

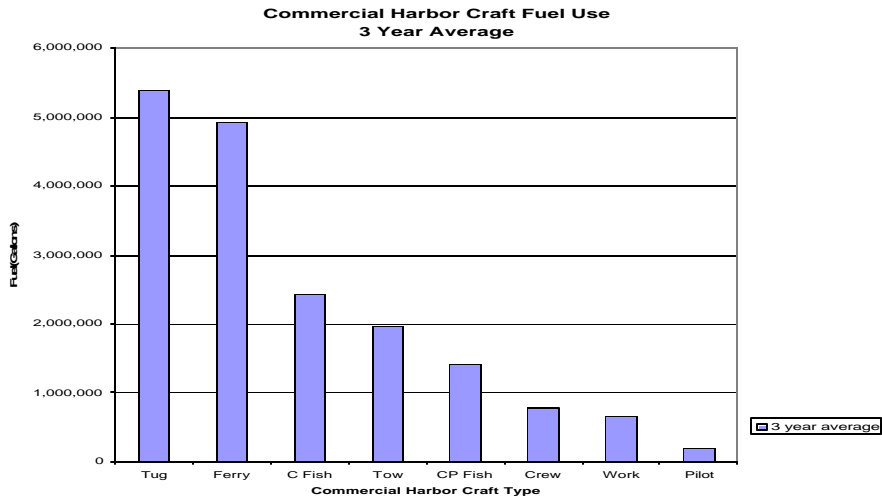
- Vessel Age
 - Range - Current to 99 years old
 - Average - 32 years old (1970)
- Engine Model Year
 - Range - Current to 97 years old
 - Average - 18 years old (1980)

Survey Results Indicate Fuel Use Is Increasing

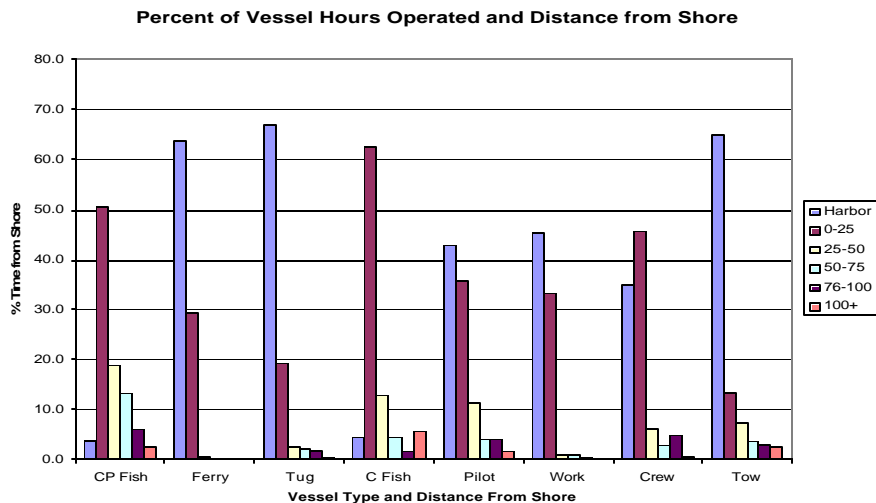
1999		2001
15,986,000 gal.		19,345,000 gal.

**Tug Boat and Ferries
Consume 58% of Fuel Total**

Total Fuel Use by Vessel Type 3 Year Average



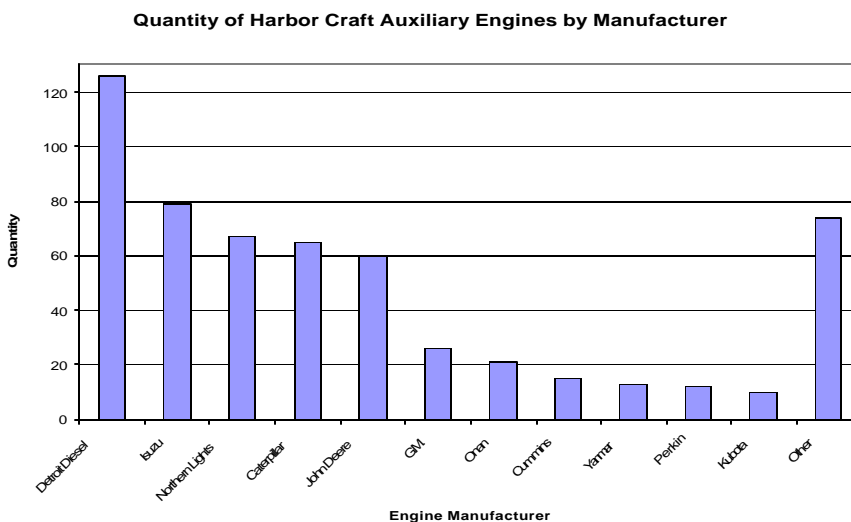
Most Commercial Harbor Craft Operate the Majority of the Time within 25 miles of California Coast



Propulsion and Auxiliary Engine Data

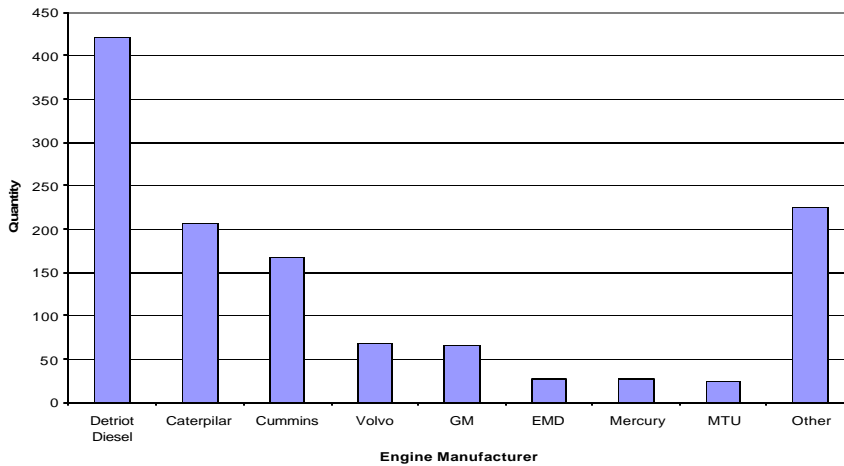
- 40% vessels had auxiliary engines
 - Average 75 hp
 - 80% 1970 model year or newer
- 63% vessels had one propulsion engine
 - 36% had 2 or more
 - Average 500 hp
 - 52% reported dry exhaust
 - 80% 1970 model year or newer

Auxiliary Engine Manufacturer



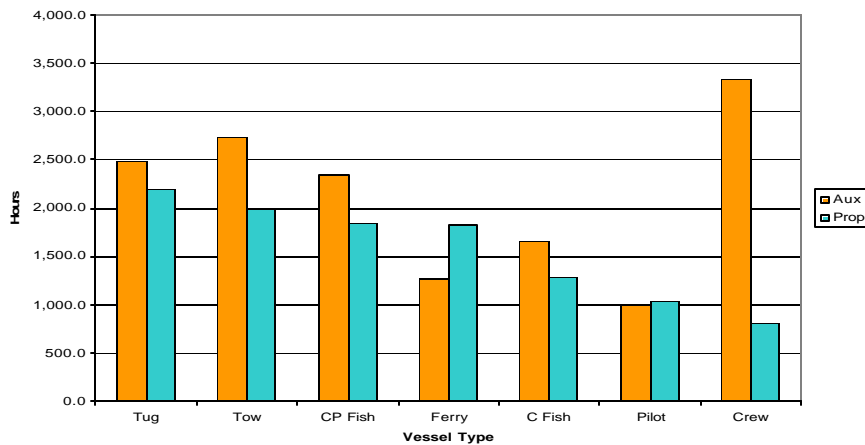
Propulsion Engine Manufacturer

Harbor Craft Propulsion Engine Manufacturers



Average Engine Hours of Operation

Average Engine Hours of Operation per Year



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Survey available: <http://www.arb.ca.gov/harborcraft>